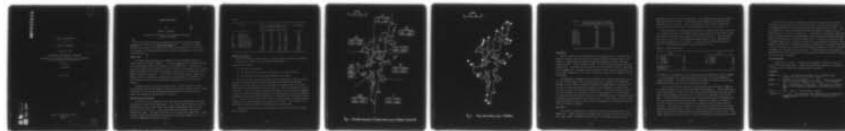


AD-A037 879

MINISTRY OF AGRICULTURE FISHERIES AND FOOD LOWESTOFT--ETC F/G 6/3
SEALS IN SHETLAND, (U)
JAN 74 S S ANDERSON

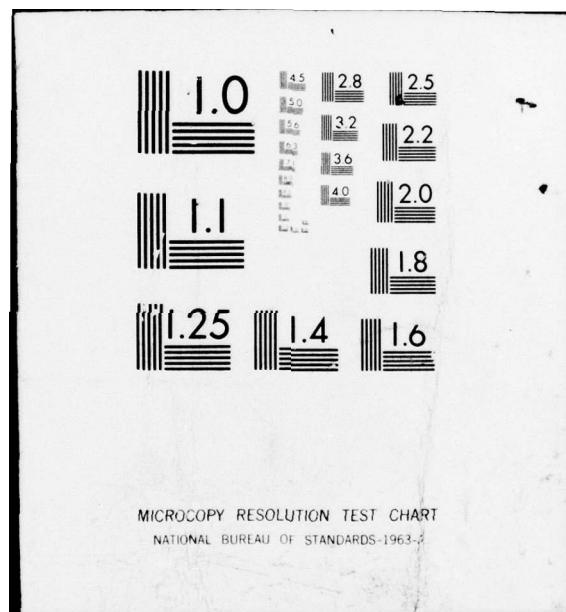
UNCLASSIFIED

| OF |
AD
A037 879



NL

END
DATE
FILMED
4-77



ADA037879

1
P.S.

(6) SEALS IN SHETLAND,

by

(10) SHEILA S. ANDERSON

(11) 30 Jan 77

Reprinted from

"THE NATURAL ENVIRONMENT OF SHETLAND"

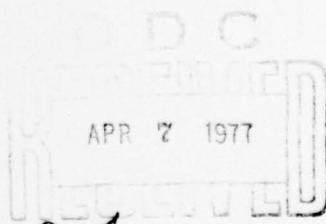
proceedings of the Nature Conservancy Council Symposium
held in Edinburgh 29-30 January 1974

Edited by

R. GOODIER

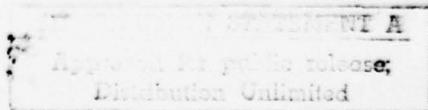
pp 114-118

404 042



AD No. 1
DDC FILE COPY

The Nature Conservancy Council
Edinburgh
1974



b7c

SEALS IN SHETLAND

by

SHEILA S. ANDERSON

Seals Research Division, IMER, Fisheries Laboratory,
Lowestoft, Suffolk

The waters around Shetland have populations of both Common seals (Phoca vitulina L.) and Grey seals (Halichoerus grypus Fab.). The status of Common seals and the results of the most recent survey are presented in the first half of this paper, and existing knowledge of the Grey seal population is discussed in the second part.

COMMON SEALS

The Common seal was formerly more abundant but has attracted attention in recent years by declining in numbers. The first suggestion that excessive hunting was reducing Common seal stocks was made in 1964 (Smith 1964). Evidence for a decline in numbers was put forward by Tickell (1970) and in September 1971 the Seals Research Division and the Nature Conservancy surveyed much of the Shetland coast in order to assess the situation. As a result of this survey (Bonner, Vaughan and Johnston 1973) the population of Common seals was estimated at 1800 animals and it was concluded that the stock was declining, although the rate of decline was unknown.

Although a close season came into force under the 1970 Seals Act and pup hunting was controlled, the taking of adults still occurred outside the close season. On the advice of the Natural Environment Research Council an order banning all Common seal hunting was implemented on 1 July 1973.

Results of the 1973 survey

In July 1973, Seals Research Division and the Nature Conservancy carried out another major census of the Common seals. The entire coast of Shetland, with the exception of Orka Voe in Yell Sound, was surveyed using Zodiac boats in a three week period from 10-30 July. Seals were counted and classified into adults, juveniles and pups. The coast was divided into the same eight areas (Fig. 1) given by Bonner et al. (1972) and the field counts for each area, together with the 1971 counts for comparison, are given in Table 1.

Table 1

Area	Counts of Common seals in 1973				1971 counts
	Adults	Juveniles	Pups	Total	
I Mousa area	185	22	36	243	209
II Whalsay area	225	16	30	271	94
III Fetlar area	197	4	21	222	259
IV North Yell area	191	15	56	262	82
V Yell Sound area	175	29	57	261	296
VI Ronas Voe area	67	0	9	76	70
VII Papa Stow area	207	10	37	254	106
VIII Scalloway area	191	8	40	239	103
	1438	104	286	1828	1219

Population Estimates

In the 1971 survey, corrections to the actual counts of adults and juveniles were made, giving estimates for the Common seal population.

Corrections were made -

- (a) for areas not surveyed
- (b) for areas surveyed in adverse conditions, e.g. heavy sea swell
- (c) for animals at sea and therefore missed in the counts

In 1973 the entire coast was surveyed, with the exception of Orka Voe, and on the whole the weather conditions were favourable for accurate seal counting. Because of this only small corrections were made for animals missed at sea, and counts for areas were rounded up to the nearest 25. The only exception is area V, Yell Sound. This area, known to support large numbers of seals, was not completely covered in one day and because seals will move from one part of an area to another according to prevailing weather conditions, it is possible that animals were missed here. Also on the day on which most of this area was surveyed, a moderate sea was running, thus probably reducing the accuracy of the counts. The correction for Yell Sound is therefore slightly higher than for the other areas.

A comparison of the 1971 and 1973 estimates is given in Table 2 and is shown also on the map.

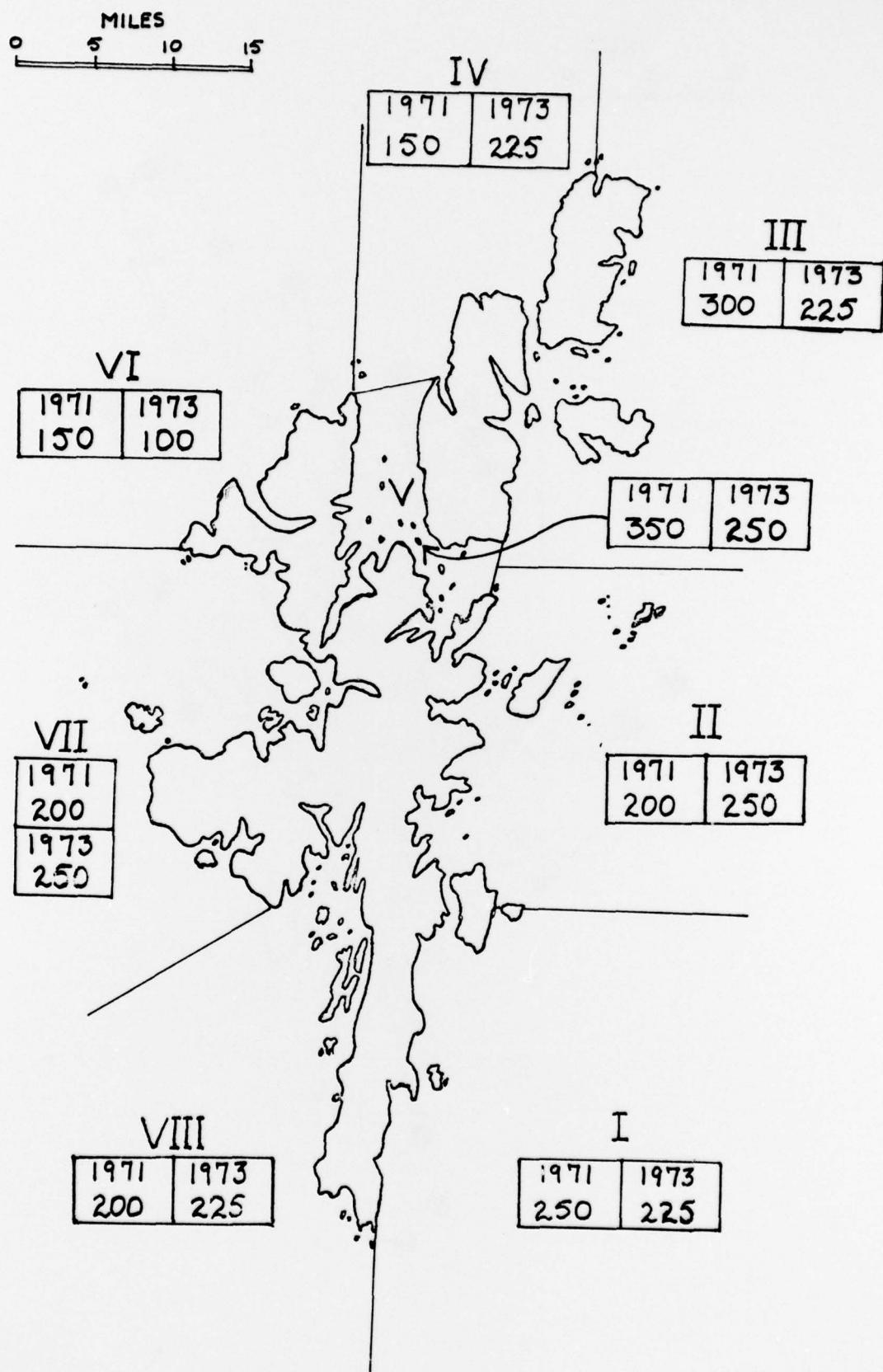


Fig. 1. Estimated abundance of Common seals by areas in Shetland 1971 and 1973.

0 5 10 15 MILES



Fig. 2. Grey seal breeding sites in Shetland.

Table 2. Estimates of Common seal population (excluding pups of the year)

	<u>1971</u>	<u>1973</u>
Area I	250	225
Area II	200	250
Area III	300	225
Area IV	150	225
Area V	350	250
Area VI	150	100
Area VII	200	250
Area VIII	200	225
	<hr/>	<hr/>
	1800	1750

Conclusions

From the estimates of 1973 population, it is apparent that in terms of total numbers of animals there has been little change from the estimated total of 1971. However, it appears that the number of pups and juveniles is greater than that counted in 1971. Of all animals recorded, 5.7% and 15.6% were juveniles and pups respectively. No figures are available in the 1971 results for direct comparison, but R W Vaughan and J L Johnston who were present on both surveys, and many of the local people, commented on the relative abundance of pups in 1973 compared with previous years.

The population of Common seals has therefore not increased significantly since 1971 but it would appear that the age structure of the population is improving. Although little is known of population dynamics of Common seals in Shetland, it is believed, by comparison with other populations, that females will produce their first pup at four or five years old (Bonner 1972). The order banning the killing of seals throughout the year should enable the breeding stock to build up again. If pup hunting is prohibited for five years, a recruiting cohort of females unreduced by hunting will produce their first pups in 1978. At this stage, if further survey reveals an improved level of stock, controlled pup-hunting on a maximum sustainable yield basis might be resumed.

GREY SEALS

The status of the Grey seal in Shetland is less well known than that of the Common seal. Small breeding sites, many of them in caves, are found at intervals over large lengths of exposed coastline (Fig. 2), and hence assessment of pup

production is difficult and time consuming. From information provided by sealers and local observers in 1962, N J Gordon (personal communication) estimated that 950 pups were born annually. Smith (1963) arrived at an estimate of 850 pups. These estimates would represent a total population of Grey seals of 3000.

Recent information of pup production consists of estimates from local observers for a number of sites in 1969, counts of the coast of Fetlar for 1969 and 1972, and the aerial survey counts for a number of sites in 1971 and 1973. The 1969 estimates did not cover all the breeding sites, and therefore direct comparison with the earlier estimates is not possible. The Fetlar counts (kindly provided by R.S.P.B. staff) show that production varies from year to year.

Table 3. Fetlar pup counts

1969		1972			
8	October	62	7	October	63
16	October	152	13	October	84
5	November	122	18	October	93
14	November	70	26	October	66
<hr/>		<hr/>			
Estimated total production		230	150		

Bad weather at the beginning of the breeding season may completely inhibit breeding at the very exposed sites, and pup survival in any year is largely dependent on weather conditions. In 1969, local observers reported that almost the entire pup production for that year was lost through severe storms.

The 1971 and 1973 aerial surveys have produced the most extensive coverage of Grey seal breeding sites in recent years (SRD Internal Report). Fetlar, North Yell (Group Holm), Gruney to Ronas Hill, Mickle Roe and South Mainland (Lady Holm, Little Holm) were photographed and counted on 17 October 1971, producing a total of 281 pups. The only important areas not covered were Ve Skerries and Out Skerries, and the cave breeding sites around Fitful Head. Making an allowance of 50 pups for each of the skerry sites and rounding up the figures gives an estimated count of 400 pups. This figure for a single day's count would correspond with a total pup production in excess of 600 for 1971. In 1973, aerial survey combined with ground counts in mid-October covering the whole of Shetland produced a total of 578. This figure has been corrected as in 1971 to give an estimated total pup production of 855.

From the present state of knowledge of the Grey seal in Shetland it may be concluded that pup production is not less than 600, no figure can be given for the maximum production, which may well exceed the estimate of 950 for 1962. The total population cannot be estimated from the pup production figures unless the Shetland seals form a self-contained unit. The recovery of an Orkney branded adult seal in Shetland outside the breeding season may indicate that Shetland represents a summer feeding ground for some of the Orkney seals. Counts of Grey seals during the summer cannot give an accurate estimate of the total population because a large number of animals will be dispersed throughout inshore waters on feeding activities. A count of 713 Grey seals made during the extensive Common seal survey of 1973 must represent only a fraction of the true total. Further studies of pup production and movements of adult seals would be necessary to assess more accurately the status of the Grey seal in Shetland.

ACKNOWLEDGEMENTS

I should like to thank J L Johnston and colleagues at SRD who took part in survey work and collated data. Thanks are also due to A Mainwood, I Robertson, P Kinnear, and R J Tulloch who kindly provided count data.

REFERENCES

BONNER, W. N., 1972. The Grey seal and Common seal in European waters. *Oceanogr. Mar. Biol. Ann. Rev.*, 10: 461-507

BONNER, W. N., VAUGHAN, R. W. and JOHNSTON, J. L., 1973. The Status of Common seals in Shetland. *Biological Conservation*, 5 (3): 185-190

SMITH, E. A., 1963. The population of Grey seals. *Grey seals and Fisheries: Report of the Consultative Committee on Grey seals and Fisheries*. HMSO

SMITH, E. A., 1964. 'Seals'. *New Shetlander*, Lerwick

TICKELL, W. L. N., 1970. The exploitation and conservation of the Common seal (*Phoca vitulina*) in Shetland. *Biological Conservation*, 2 (3); 179-184